

Form PTO-1390 (Rev. 12-29-99) <b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>		US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  <b>ATTORNEY'S DOCKET NO. H 3948 PCT/US</b>
		U.S. APPLICATION NO. (if known see 37 CFR 1.5) <b>10/018626</b>
<b>INTERNATIONAL APPLICATION NO.</b> <b>PCT/EP00/05339</b>	<b>INTERNATIONAL FILING DATE</b> <b>June 9, 2000</b>	<b>PRIORITY DATE CLAIMED</b> <b>June 18, 1999</b>
<b>TITLE OF INVENTION</b> <b>USE OF A FILM WITH ANCHORING ELEMENTS FOR A MECHANIC FIXATION</b>		
<b>APPLICANT(S) FOR DO/EO/US</b> <b>Tilwin LEPSIUS, Wolfgang KLAUCK and Gaby SCHILLING</b>		
Applicant herewith submits to the United States Designated/Elected Office (EO/DO/US) the following items and other information:		
<p>1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39 (1).</p> <p>4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)).</p> <ol style="list-style-type: none"> <li><input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</li> <li><input checked="" type="checkbox"/> has been transmitted by the International Bureau.</li> <li><input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</li> </ol> <p>6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</p> <p>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <ol style="list-style-type: none"> <li><input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</li> <li><input type="checkbox"/> have been transmitted by the International Bureau.</li> <li><input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</li> <li><input checked="" type="checkbox"/> have not been made and will not be made.</li> </ol> <p>8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</p> <p>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p>		
<b>Items 11. to 16. below concern other document(s) or information included:</b>		
11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.		
12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.		
13. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment.		
14. <input type="checkbox"/> A substitute specification.		
15. <input type="checkbox"/> A change of power of attorney and/or address letter.		
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PATENT  
Docket H 3948 PCT/US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re: PCT/EP00/05339

International Filing Date: June 9, 2000  
Priority Date: June 18, 1999  
Applicant: LEPSIUS, et al.  
Title: USE OF A FILM WITH ANCHORING ELEMENTS FOR A MECHANIC FIXATION

PRELIMINARY AMENDMENT

Assistant Commissioner of Patents  
Washington, DC 20231

Please enter the amendments below before examining this case on the merits:

IN THE SPECIFICATION:

On page 1, insert below the title:

--CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a U.S. National Stage application filed under 35 U.S.C. § 371 of International Application No. PCT/EP00/05339, claiming priority under 35 U.S.C. §§ 119 and 365 of PCT/EP00/05339, filed June 9, 2000, in the European Patent Office, and DE 199 27 790.7, filed June 18, 1999, in the German Patent Office.--

On page 1, insert between lines 21 and 22 the heading -  
-DESCRIPTION OF THE INVENTION--.

IN THE CLAIMS:

Please cancel claims 1-19 without prejudice, and add new claims 20-54:

20. A method of nondestructive, reversible fixing of a coherent layer to a substrate, comprising the steps of anchoring a nonfibrous coherent layer to a film having either or both of projecting or embedded anchoring elements, wherein the anchoring elements provide mechanical anchorage of the coherent layer to the film, and fixing the coherent layer and film to the substrate.

21. The method of claim 20, wherein the coherent layer is anchored by applying a liquid or paste form material to the substrate that sets on the substrate to form the coherent layer, which is nonadhesive or only slightly adhesive to the film.

22. The method of claim 20, wherein the film comprises or is coated with a material to which the coherent adhesive layer shows very little or no adhesion.

23. The method of claim 22, wherein film comprises or is coated with one or more polyolefins, silicone, or fluorine polymers.

24. The method of claim 20, wherein the anchoring elements

have a length of at least 0.05 mm.

25. The method of claim 24, wherein the anchoring elements have a length of at least 0.2 mm.

26. The method of claim 20, wherein one or more of the anchoring elements project from the surface of the film.

27. The method of claim 20, wherein the coherent layer is peeled away from the film and the anchoring elements are sufficiently deformable so that no more than 50% of the anchoring elements lose anchoring function after peeling of the coherent layer from the film.

28. The method of claim 20, wherein the coherent layer is peeled away from the film and the anchoring elements comprise a sufficiently deformable material so that at least 30% of the anchoring elements retain anchoring function after peeling of the coherent layer from the film.

29. The method of claim 28, wherein the anchoring elements comprise a plastic having a glass transition temperature below 25°C.

30. The method of claim 29, wherein the anchoring elements comprise a plastic having a glass transition temperature below 10°C.

31. The method of claim 28, wherein the anchoring elements comprise polyethylene or polypropylene.

32. The method of claim 20, wherein the anchoring elements comprise mushroom-shaped elements projecting from the film, said elements having a cap and a stalk, wherein the cap and stalk have a ratio of cross-sectional diameters of less than 10:1.

33. The method of claim 20, wherein the coherent layer is peeled away from the film and the coherent layer comprises a material that is sufficiently deformable so that less than 50% of the anchoring elements lose anchoring function after peeling of the coherent layer from the film.

34. The method of claim 20, wherein the anchoring elements comprise a material that is nondeformable or substantially nondeformable in the form of a thin layer with a thickness of 0.05 mm to 10 mm.

35. The method of claim 34, wherein the material comprising the anchoring elements is a resilient material having less than 30% deformability.

36. The method of claim 34, wherein the material comprising the anchoring elements is a non-resilient material having less than 15% deformability.

37. The method of claim 20, wherein the anchoring elements comprise metal, ceramic, glass, or a thermoset or thermoplastic having a glass transition temperature of at least 0°C.

38. The method of claim 37, wherein the thermoset or

thermoplastic has a glass transition temperature of at least 25°C.

39. The method of claim 20, wherein the anchoring elements are shaped to slide out from the coherent layer when it is peeled from the film.

40. The method of claim 20, wherein the coherent nonfibrous layer consists of a single layer.

41. The method of claim 40, wherein the coherent nonfibrous layer consists of a plaster, paint, lacquer, sealing, road marking, or PU foam layer.

42. The method of claim 20, wherein the coherent nonfibrous layer comprises at least one layer.

43. The method of claim 42, wherein coherent nonfibrous layer comprises an adhesive layer.

44. The method of claim 43, wherein the adhesive layer comprises an adhesive having a glass transition temperature below 25°C in its set state.

45. The method of claim 43, wherein the adhesive layer is based on a dispersion adhesive.

46. The method of claim 42, wherein the coherent nonfibrous layer comprises a surface layer.

47. The method of claim 46, wherein the surface layer

comprises tile, wood, wall covering, or plastic molding.

48. The method of claim 20, wherein the film is fixed to the substrate by adhesives, nails, or screws.

49. The method of claim 20, wherein the substrate is a wall, ceiling, or floor of a building or motor vehicle.

50. The method of claim 20, wherein the film is mechanically fixed to the substrate by anchoring elements either directly or indirectly via a coherent nonfibrous layer.

51. The method of claim 50, wherein the coherent nonfibrous layer fixing the film to the substrate comprises an adhesive layer.

52. The method of claim 51, wherein the adhesive layer fixing the film to the substrate adheres to the substrate at least 50% stronger than to the coherent nonfibrous layer anchored to the film.

53. The method of claim 52, wherein the coherent nonfibrous layer anchored to the film and the adhesive layer fixing the film to the substrate comprise the same material.

54. The method of claim 20, wherein the film having the anchoring elements has holes making up at most 10% of its surface.

IN THE ABSTRACT:

Please add to the application on a separate page following the claims the abstract attached to this preliminary amendment.

REMARKS

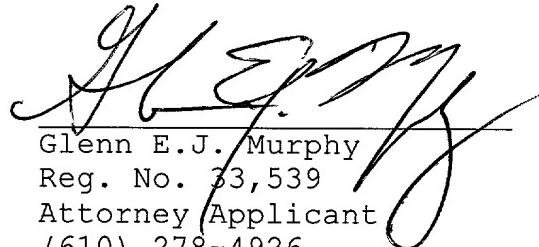
Applicants cancel claims 1-19 without prejudice and enter claims 20-54. The subject matter of the new claims is described the specification in the original claims. The specification has been amended to include a cross-reference to related applications and headings appropriate to U.S. practice. No new matter has been added.

The new claims better claim the full literal and equivalent scope and breadth of subject matter disclosed in the application, notwithstanding applicants' belief that the original claims, drafted for examination in the German and European Patent Offices, would have been allowable but for minor matters of form permitted in German or European practice but objected to in the U.S.P.T.O. The new claims find support in the application and therefore are not believed to constitute narrowing amendments to the original claims within the holding of Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., No. 95-1066 (Fed. Cir. Nov. 29, 2000).

Preliminary Amendment of US National Stage for International  
Application PCT/EP00/05339 filed June 9, 2000

Applicants respectfully request entry of this Amendment and examination of the application. If any fees are due to enter this paper that have not been accounted for, please charge Deposit Account No. 01-1250.

Respectfully submitted,



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ABSTRACT

A method of nondestructive, reversible fixing of a coherent layer to a substrate, comprising the steps of anchoring a nonfibrous coherent layer to a film having either or both of projecting or embedded anchoring elements, wherein the anchoring elements provide mechanical anchorage of the coherent layer to the film, and fixing the coherent layer and film to the substrate. The coherent layer is anchored by applying a liquid or paste form material to the substrate that sets on the substrate to form the coherent layer, which is nonadhesive or only slightly adhesive to the film.

PCT/EP00/05339

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## Use of a Film with Anchoring Elements for a Mechanic Fixation

This invention relates to the use of a film with anchoring elements for mechanically fixing a coherent layer to a substrate.

One such use is known. Thus, **DE 7029524** describes a device for fixing wall, ceiling, floor or other surface coverings which consists of an intermediate support with anchoring elements and of a nonwoven to which nonfibrous covering materials, for example paper, plastic films, plastic moldings, wood and metals, are fixed. This device has the major advantage that the connections can be easily and completely broken at a certain place. However, it also has the disadvantage that the joined substrates are very difficult to reposition relative to one another. This applies in particular to substrates of large surface area. In addition, coverings which level out uneven surfaces are not possible.

Accordingly, the problem addressed by the present invention was to find a way of reversibly joining two substrates which would not have any of these disadvantages and which in addition would provide a composite material that would be able to withstand routine tensile shear stresses while allowing easy and almost complete separation. In addition, the substrates would be reusable after separation.

The solution to this problem as provided by the invention is defined in the claims and is essentially characterized in that a fibrous layer is not used for mechanical anchoring with the anchoring elements of a film.

According to the invention, a liquid substance is directly applied to and solidified on the film with the anchoring elements. Minimal adhesion should occur between the film with the anchoring elements and the solidified liquid substance. Cohesion should be largely provided by the

mechanical anchorage of the solidified liquid substance. In addition, tearing off of the anchoring elements during separation of the solidified liquid substance from the film with the anchoring elements should largely be avoided by a suitable choice a) of deformable materials and b) slidable forms of the anchoring elements. The anchoring elements should withstand separation without damage (see Fig. 1).

The present invention relates to the use of a film with projecting and/or embedded anchoring elements for mechanically fixing a coherent layer to a substrate, the coherent layer being nonfibrous. The preferred embodiments can be found in the characterizing features of the claims.

The present invention also relates to a double-sided adhesive tape of a film with anchoring elements on at least one side instead of an otherwise typical smooth film, a woven fabric or a nonwoven, the adhesion of the pressure sensitive adhesive layer of the film on one side of the film being so low that it can be peeled off intact.

The present invention also relates to a film with embedded anchoring elements.

The present invention further relates to a velcro tape of elastomers, more particularly thermoplastic elastomers.

Films in the context of the invention are understood to be thin, flat flexible webs of metals, glass, ceramic and, above all, plastics. Their thickness is preferably in the range from 0.04 to 2 mm. However, they may also be considerably thicker in cases where the flexibility of the webs and their ability to be rolled up easily are not important criteria. More particularly, moldings provided with anchoring elements during their actual production, for example plates or bars, may be used.

The surface of the film is appropriate and, in particular, may be round or strip-like with a width of 0.2 to 1,000 and more particularly 1 to 500 cm for a length of 0.05 to 5,000 and more particularly 0.1 to 4,000 m. The film is generally compact, i.e. has no pores or holes or only small pores or

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holes. The sum of the holes makes up at most 10% of the total surface area. The shape, size and number of holes should be such that, although the desired permeability to gases and vapors is achieved, none of the still liquid phase strikes through during the production of the coherent layer.

- 5 The material of the film is either metal or plastic, preferably plastic, more particularly a polyolefin, such as polyethylene or polypropylene, polyamide, polyvinyl chloride, a fluorine-containing polymer, silicone or a polyurethane elastomer or utility articles coated therewith. In one particular embodiment, the films and anchoring elements consist of the same  
10 material. However, they may also consist of a combination of materials.

Corresponding films are known in large numbers. When choosing the film, the deformability and adhesion of the nonfibrous coherent layer should be taken into consideration. Adhesion should be low and the deformability of the anchoring elements and/or the nonfibrous coherent layer should be so high that the anchoring elements largely retain their function, i.e. are not torn off, during separation of the layers.

- The low adhesion between the film and the nonfibrous coherent layer may emanate from the nature of the materials used. However, it may also be obtained by a pretreatment before application of the liquid nonfibrous layer, for example by spraying with water or by coating with wax or similar materials that are difficult to bond.

The deformability of the anchoring elements or the coherent nonfibrous layer may also emanate from the nature of the materials used or may be attributed to physical measures, for example porosity.

- 25 The shape of the anchoring elements is of course also important. If, for example, the nonfibrous coherent layer consists of a non-deformable material such as, for example, cement- or gypsum-based binders or a two-component epoxide, the anchoring elements should be relatively readily deformable and elastic both in their constituent material and in their shape,  
30 for example should consist of plastics, such as PE, PP, silicone or rubber.

One side of the film is generally smooth so that it may readily be fixed to the substrate either by a covered adhesive layer or by nails and screws. It may also have anchoring elements on both sides, particularly when the substrate is fibrous or when the same adhesive is to be used  
5 both for fixing the film to the substrate and for fixing to the substrate.

The number of anchoring elements depends inter alia on the required level of adhesion and is generally between 0.1 and 2,000 and preferably between 1 and 500 g per cm<sup>2</sup>.

The foil has anchoring elements on at least one side. Their length is  
10 at least 0.05 mm and preferably at least 0.2 mm and only rarely exceeds 10 mm. The anchoring elements may be embedded in the film, but preferably project beyond the plane of the film. In the latter case, the film may be a typical velcro tape, an antislip tape or a "stubble" film, for example a flocked film. However, not all forms of anchoring elements of typical velcro tapes  
15 are equally suitable. Thus, anchoring elements with undercuts (acute angle between pin and hook) or with loop-like spirals or closed loops are unfavorable. The same applies to anchoring elements with such an intensive anchoring effect that they are torn out during separation. Thus, in the case of a mushroom-shaped anchoring element, the cross-sectional  
20 diameter of the cap should be less than 10 times the value of the stalk of the mushroom. Anchoring elements with loops are of course particularly unfavorable (see Fig. 2). The shapes of the anchoring elements are favorable when they allow sliding out from the coherent layer without losing their function or being torn off (see Fig. 3). Particularly favorable forms are  
25 characterized in that the angle between the pin and the hook is 90° or larger (see Fig. 4). However, it must be smaller than 180° because otherwise no hooking occurs unless the pin is oblique rather than vertical in relation to the film. If then the pins still point in different directions, they also effect anchorage of the nonfibrous coherent layer. In contrast to  
30 conventional velcro tapes, the anchoring elements or their pins may also

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form an angle of less than 90° and preferably less than 45° to the film. Which angle is the most favorable will depend inter alia on the deformability of the coherent layer.

In general, the ends of the anchoring elements are not pin-like, but  
5 thickened (heads), angled or bent downwards (hooks) or flattened off (mushroom shape). Figures 1a, 1b and 1c schematically illustrate the change in the cross-sectional form of a readily deformable anchoring element (1), a) during the first coating with the coherent layer, b) during its separation in the hardened state and c) before the second coating. The  
10 cap of the mushroom is deformed during separation. Recovery may not be 100% (compare 1c) with 1a)).

Figures 2a) to 2f) show schematic cross-sections of the shapes of anchoring elements which are unsuitable for nondestructive separation, even when the nonfibrous coherent layer is readily deformable. This is  
15 because they have undercuts (see 2a) and 2b)) or even loops (2c), 2d) and 2e)). The shape 2f) is unfavorable on account of the size ratio of mushroom cap to mushroom stalk.

Figures 3a), b), c), d) and e) are schematic cross-sections through the shapes of readily deformable anchoring elements which are favourable  
20 for nondestructive separation.

Figure 4 is a schematic cross-section through a shape of an anchoring element of a material that does not readily deform a) during coating and b) during separation.

Figure 5 is a schematic cross-section through the film (2) with (a)  
25 only embedded anchoring elements and (b) a combination of embedded and projecting anchoring elements.

Where the nonfibrous coherent layer is completely or substantially nondeformable, the anchoring elements preferably consist of a material which is barely deformable, if at all, in a thin layer of 0.05 to 10 mm.

30 The composite material produced in accordance with the invention

withstands tensile stresses comparable with those known for the particular application, but is weaker in its peel strength by a factor of at least 2 and preferably by a factor of > 5 by comparison with peel strengths on typical substrates without the film with anchoring elements. Accordingly, relatively little force has to be applied for separation. Separation takes place specifically on the film, the anchoring elements remaining largely intact and being available for reuse.

5 Other advantages of the fixing according to the invention are:

- repositionability of the substrates providing the nonfibrous layer has not solidified,
- substantially complete separation and
- gap bridging at any level.
- Leveling of uneven substrates is readily possible through the variable thickness of the nonfibrous layer.

10 15 The nonfibrous coherent layer is formed on the film with the anchoring elements by the application in liquid form of a solidifiable substance as a layer in the required thickness - preferably thicker than corresponds to the height of the projecting anchoring elements, even in the set state. In the case of the embedded anchoring elements, it has to be so liquid that it penetrates at least partly into the voids. In the case of the projecting anchoring elements, it may be paste-like or kneadable, for example a surfacing compound or kneading compound. A paste-like compound is understood to be one with a Brookfield viscosity in the range from 20,000 to 1,000,000 mPas, as measured at the application temperature of -100 to 300°C and preferably -30 to 200°C. High-viscosity pastes may also be used, particularly for horizontal application. In their case, the viscosity is in the range from 2,000 to 20,000 mPas. Compounds with viscosities of more than 1,000,000 mPas may also be used providing they can be incorporated in the anchoring elements, for example by

20 25 30 kneading.

DOCUMENT

When the film is being coated with the anchoring elements, it is of course important to ensure that the anchoring elements are not destroyed either by mechanical forces or by melting where, for example, heated compounds, such as hotmelt adhesives, are applied.

- 5        The initially liquid nonfibrous layer sets and solidifies, such high cohesion being developed that the nonfibrous layer can be separated intact and almost completely from the film despite the anchoring elements. This solid coherent layer is generally compact, but may also be porous.

The usual inorganic and organic binders are used including, for  
10      example, hydraulic binders (for example cement), lime mortar, gypsum, waterglass, polymer dispersions, polymer melts, polymer solutions, reactive one- or two-component polymer-based systems with the usual additives. Nonfibrous setting layers are plasters, lacquers, paints, road markings, PU foams, sealing compounds. Adhesives of any kind with which the  
15      substrates or elements can be joined, even without films, are preferred.

In the hardened state, the coherent nonfibrous layer is nonadhesive or only slightly adhesive towards the film with the anchoring elements, the adhesion level amounting to at most 100% and preferably to at most 50% of the mechanical anchorage value. It is crucial that, when the layer is  
20      subsequently peeled off, its inner strength is higher than the sum of the adhesive strength and the mechanical anchorage.

The coherent nonfibrous layer is preferably an adhesive or contains binders typical of adhesives, i.e. it joins the substrate to a surface layer.

The surface layer or the substrate is generally a protective or  
25      decorative layer, for example wall, ceiling or floor coverings for buildings or vehicles, for example wallpapers, inlaid floors, laminates, insulating boards, protective films, tiles, floor tiles, marble tiles, clay tiles, roof panels, carpets, pictures, shelves, panes of glass, bricks, coverings, claddings, etc.

The substrate may consist of masonry, plasters, concrete, screeds,  
30      surfacing fillers, metal, wood and plastic surfaces, tiles, glass.

The film seals the substrate in the usual way, depending on its thickness and its constituent material. However, its permeability to air, water vapor and other gases may be improved by a certain porosity.

By virtue of these advantages, the invention is suitable for many 5 applications of which some are mentioned by way of example in the following drawings:

Figure 6 is a schematic cross-section through a known composite material. The composite material contains the following layers:

- a) decorative layer (3),
- 10 b) adhesive layer (4),
- c) textile layer (5),
- d) film (2) with anchoring elements (1),
- e) adhesive layer (4) and
- f) substrate (6).

15 Figure 7 is a schematic cross-section through a composite material according to the invention of the following layers:

- a) decorative layer,
- b) adhesive layer (4),
- c) film (2) with anchoring elements (1),
- 20 d) adhesive layer (4) and
- e) substrate (6).

This composite material is typical of many applications in the domestic sector; the decorative layer may consist, for example, of wood blocks or tiles.

25 Figure 8 is a schematic cross-section through a composite material according to the invention comprising the following layers:

- a) decorative layer (3),
- b) film (2) with anchoring elements (1) on both sides and
- c) carpet as the fibrous substrate (6).

30 This composite material is typical of many applications where the set

nonfibrous coherent layer is sufficient, for example plaster optionally augmented by a paint.

Figure 9 is a schematic cross-section through an angled composite material according to the invention consisting of

- 5    a)    a joint sealing compound as the coherent layer (4),  
      b)    a film (2) with anchoring elements (1),  
      c)    an adhesive layer (4) and  
      d)    the substrate (6).

This composite material is particularly suitable for sealing gaps  
10    between walls and bathtubs because it seals very effectively in the long term and because the joint sealing compound can be easily replaced when its appearance has deteriorated.

Figure 10 is a schematic cross-section through a composite material according to the invention comprising relatively many layers, namely:

- 15    a)    a covering (2) with anchoring elements (2),  
      b)    an adhesive (4),  
      c)    a film (2) with anchoring elements (1) on both sides,  
      d)    an adhesive (4) and  
      e)    a substrate (6) with anchoring elements (1).

20    This composite material is useful, for example, when the film with anchoring elements is to be joined on the one hand to the substrate and on the other hand to a covering with one and the same adhesive.

#### **List of reference numerals**

- 1    anchoring element
- 2    film
- 3    decorative layer
- 4    adhesive layer or nonfibrous coherent layer
- 5    textile layer
- 6    substrate

**CLAIMS**

1. The use of a film with projecting and/or embedded anchoring elements for the predominantly mechanical, nondestructively reversible fixing of a coherent layer to a substrate, characterized in that the coherent layer is nonfibrous.  
5
2. The use claimed in claim 1, characterized in that the coherent layer is applied to the film in liquid, preferably paste-like form and sets thereon to form a layer which is solid at the service temperature and which is nonadhesive or only slightly adhesive towards the film.
- 10 3. The use claimed in claim 1, characterized in that the film consists of or is coated with a material to which the coherent adhesive layer shows very little or no adhesion, the material consisting in particular of polyolefins, silicone or fluorine polymers.
- 15 4. The use claimed in claim 1, characterized in that the anchoring elements of the film have a length of at least 0.05 mm and preferably of at least 0.2 mm.
5. The use claimed in at least one of claims 1, 3 or 4, characterized in that the anchoring elements project from the plane of the film.
- 20 6. The use claimed in claim 5, characterized in that the anchoring elements of the film by virtue of their shape and/or their constituent material are so deformable that the nondeformable or substantially nondeformable coherent layer can be peeled off without more than 50% of the anchoring elements losing their ability to function or being torn off.
- 25 7. The use claimed in claim 6, characterized in that the anchoring elements consist of a readily deformable material which guarantees at least 30% recovery and more particularly of a plastic with a glass transition temperature below 25°C and preferably below 10°C, the anchoring elements most preferably consisting of polyethylene or polypropylene.
8. The use claimed in claim 6 or 7, characterized in that the anchoring elements have a shape with very few, if any, undercuts or voids and, more  
30

particularly, assume the shape of mushrooms with a ratio of the cross-sectional diameters of mushroom cap to stalk of < 10:1.

9. The use claimed in claim 6, characterized in that the anchoring elements of the films by virtue of their shape and/or their constituent material are not readily deformable although less than 50% lose their ability to function or are torn off during separation by virtue of the ready deformability of the coherent layer.

10. The use claimed in claim 6 or 9, characterized in that the anchoring elements consist of a material which is nondeformable or substantially nondeformable in the form of a thin layer with a thickness of 0.05 to 10 mm, showing less than 30% deformability in the case of resilient materials and less than 15% deformability in the case of no resilient materials.

11. The use claimed in claim 9 or 10, characterized in that the anchoring elements consist of metal, ceramic, glass or a thermoset or thermoplastic with a glass transition temperature of at least 0°C and preferably of at least 25°C.

12. The use claimed in claim 9, characterized in that the anchoring elements have a shape which allows them to slide out from the coherent layer and, more particularly, have no undercuts or voids that would hold back the nonfibrous coherent layer.

13. The use claimed in at least one of the preceding claims, characterized in that the coherent nonfibrous layer a) carries no other layer, i.e. for example is a plaster, paint, lacquer, sealing, road marking or PU foam layer, or b) carries another layer, i.e. in particular an adhesive layer is applied with good adhesion to a corresponding surface layer, the adhesive preferably having a glass transition temperature below 25°C in its set state and preferably being based on dispersion adhesives.

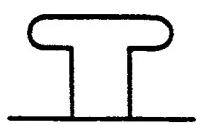
14. The use claimed in claim 13, characterized in that the other layer on the adhesive layer is a surface layer, more particularly a layer of tiles, wood blocks, wall coverings and plastic moldings.

15. The use claimed in claim 1, characterized in that the films are fixed to the substrate by adhesives, nails or screws.
16. The use claimed in claim 1, characterized in that the substrate is a wall, ceiling or floor of a building or motor vehicle, such as a caravan.
- 5 17. The use claimed in claim 1, characterized in that the film is also mechanically fixed to the substrate by anchoring elements either directly or indirectly via a coherent nonfibrous layer, more particularly an adhesive layer, the adhesion to the substrate being at least 50% higher than that to the upper coherent nonfibrous layer or to the adhesive layer.
- 10 18. The use claimed in claim 17, characterized in that the coherent nonfibrous layer or the adhesive layer is the same on both sides of the film.
19. The use claimed in claim 1, characterized in that the film with the anchoring elements has holes which make up at most 10% of its total surface area.

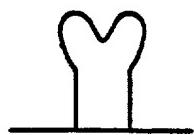
1 / 4

FIG.1

a)



b)

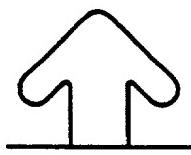


c)

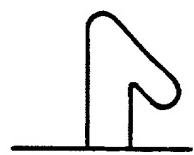


FIG.2

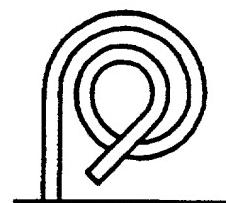
a)



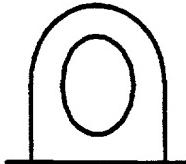
b)



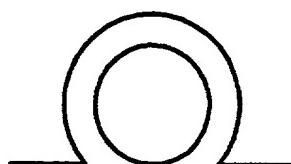
c)



d)



e)

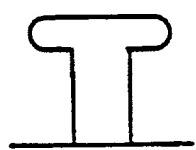


f)

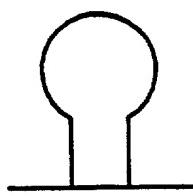


FIG.3

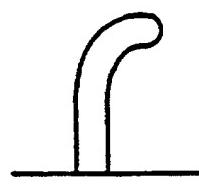
a)



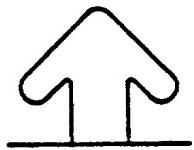
b)



c)



d)

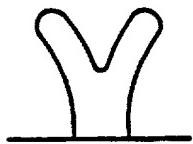


e)

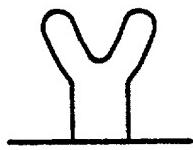


FIG.4

a)



b)



3 / 4

FIG.5



FIG.6

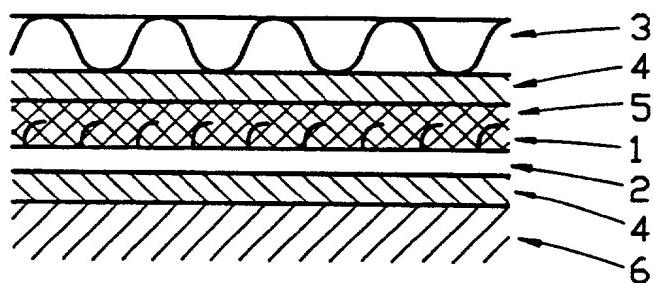


FIG.7

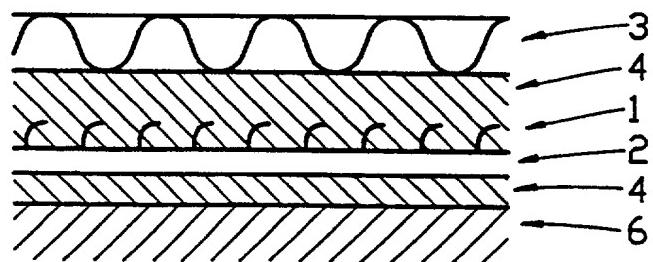


FIG.8

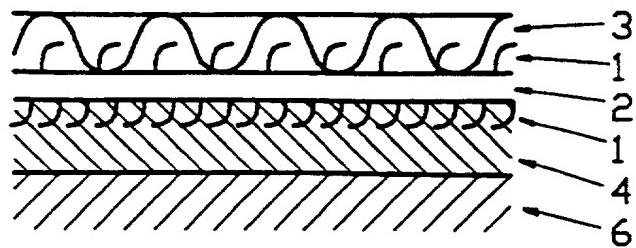


FIG.9

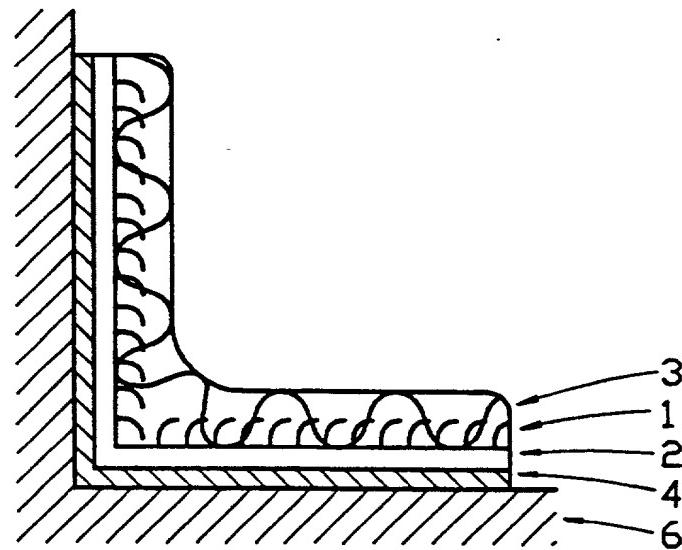
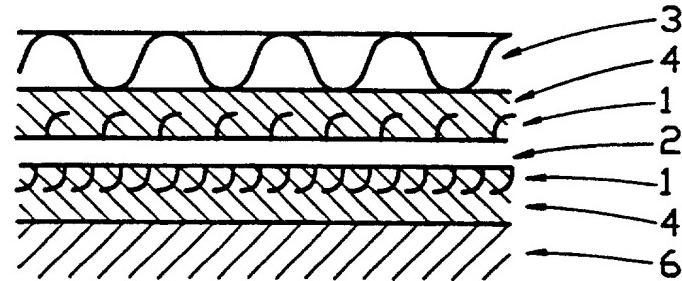


FIG.10



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Rev. 6/95U.S. Department of Commerce  
Patent and Trademark Office

## DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION

Declaration Submitted with Initial Filing      OR     Declaration Submitted after Initial Filing

Attorney Docket Number	H 3948 PCT/US
First Named Inventor	LEPSIUS, Tilwin
<b>COMPLETE IF KNOWN</b>	
Application Number	10/018,626
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

### USE OF A FILM WITH ANCHORING ELEMENTS FOR A MECHANIC FIXATION

(Title of the Invention)

the specification of which

 is attached hereto

OR

 was filed on (MM/DD/YYYY) 6/9/2000 as United States Application Number or PCT InternationalApplication Number PCT/EP00/05339 and was amended on (MM/DD/YYYY)                  (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56

I hereby claim foreign priority benefits under Title 35, United States Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT International application having a filing date before that of the application on which priority is claimed

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES NO
199 27 790.7	Germany	6/18/1999	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>

 Additional foreign application numbers are listed on a supplemental priority sheet attached hereto

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.
<u>                </u>	<u>                </u>	<input type="checkbox"/>

Burden Hour Statement This form is estimated to take .4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231 DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO Assistant Commissioner for Patents, Washington DC 20231

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## DECLARATION

Page 2

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365© of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112.1 acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)
	PCT/EP00/05339	6/9/2000	

Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Firm Name  Customer Number or label

OR

List Attorney(s) and/or agent(s) name and registration number below:

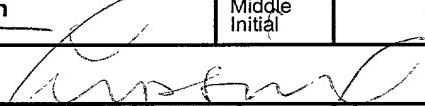
Name	Registration Number	Name	Registration Number
Wayne C. Jaeschke	21,062	Stephen D. Harper	33,243
Glenn E. J. Murphy	33,539	Kimberly R. Hild	39,224

Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

Please direct all correspondence to:  Customer Number or label  00423 OR  Fill in correspondence address below

Name	Glenn E. J. Murphy					
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Address	2500 Renaissance Blvd, Suite 200					
City	Gulph Mills	State	PA	Zip	19406	
Country	USA	Telephone	610-278-4926	Fax	610-278-6548	

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:		<input type="checkbox"/> A petition has been filed for this unsigned inventor						
Given Name	Tilwin	Middle Initial		Family Name	LEPSIUS	Suffix e.g. Jr.		
Inventor's Signature						Date	C. 12.01	
Residence: City	Duesseldorf	DEX	State	Ger	Country	Germany	Citizenship	Germany
Post Office Address		Bardelebenstr. 8						
Post Office Address								
City	40545 Duesseldorf	State		Zip		Country	Germany	Applicant Authority
<input checked="" type="checkbox"/> Additional inventors are being named on supplemental sheet(s) attached hereto								

(+) inside this box →

H 3948 PCT/US

**DECLARATION****ADDITIONAL INVENTOR(S)**

## Supplemental Sheet

**Name of Additional Joint Inventor, if any:** A petition has been filed for this unsigned inventor

Given Name	Wolfgang		Middle Initial		Family Name	KLAUCK'		Suffix e.g. Jr.	
Inventor's Signature						Date	12/10/01		
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Post Office Address	Dresdener Str. 12								
Post Office Address									
City	40670 Meerbusch	State		Zip		Country	Germany	Applicant Authority	

**Name of Additional Joint Inventor, if any:** A petition has been filed for this unsigned inventor

Given Name	Gaby		Middle Initial		Family Name	SCHILLING		Suffix e.g. Jr.	
Inventor's Signature						Date	12.12.01		
Residence: City	Duesseldorf	DE	State	Ger	Country	Germany	Citizenship	Germany	
Post Office Address	Bilker Allee 43								
Post Office Address									
City	40219 Duesseldorf	State		Zip		Country	Germany	Applicant Authority	

**Name of Additional Joint Inventor, if any:** A petition has been filed for this unsigned inventor

Given Name			Middle Initial		Family Name			Suffix e.g. Jr.	
Inventor's Signature						Date			
Residence: City			State		Country			Citizenship	
Post Office Address									
Post Office Address									
City			State		Zip		Country		

**Name of Additional Joint Inventor, if any:** A petition has been filed for this unsigned inventor

Given Name			Middle Initial		Family Name			Suffix e.g. Jr.	
Inventor's Signature						Date			
Residence: City			State		Country			Citizenship	
Post Office Address									
Post Office Address									
City			State		Zip		Country		

 Additional inventors are being named on supplemental sheet(s) attached hereto